

601 - GENERAL

601.1

Notices to the Public

The Contractor shall notify all residences, businesses, and institutions that are located along the streets to be paved or overlaid at least forty-eight (48) hours prior to beginning the operations. Said notification shall advise the public of the following:

1. The approximate time that traffic, parking, ingress, and/or egress will be restricted and a description of the restriction,
2. When the work will be done if weather does not allow work at the scheduled time,
3. Any precautions the public needs to take when using the roadway to prevent damage to the new roadway surface,
4. Any other information the Contractor deems important.

If, after notifying residences, businesses, and institutions along the roadways to be resurfaced, the resurfacing is rescheduled, the Contractor shall re-notify them of the new resurfacing date at least twenty-four (24) hours prior to beginning the resurfacing operation.

601.2

Contractor Qualifications

The contractor shall submit all necessary pre-qualification forms to the Engineering department five (5) days prior to the contract bid opening. Only one pre-qualification form needs to be submitted for the year the work is being bid.

As a minimum, the contractor must meet the following requirements:

The Village reserves the right to prohibit the paving operations if the Village determines the contractor to be unqualified.

1. Have proven experience in highway paving.
2. Have equipment sufficient to produce, deliver and lay 150 tons of bituminous material per hour.
3. Paving machines shall be equipped with automatic leveling devices in working order.
4. Paving machines shall have sufficient power, when paving widths of up to 16 feet, to maintain paving speed, alignment and grade.
5. Contractor shall have adequate trucks to assure continuous paving operations.
6. Experienced operators are required on all equipment used in the production and laying of the bituminous material.
7. The contractor shall provide adequate trucks and paving equipment to assure a continuous paving operation and avoid frequent delays.

601.3

Job Mix Design and Samples

At least two weeks prior to commencing any paving operations, the contractor shall submit to the Engineer an asphalt mix design report (ASTM D-1559) including: void data, a sieve analysis on the aggregates, aggregate blend percentages, job mix formula, recommended asphalt content and recommended plant mix temperature range. The mix design shall be current (within the year the material will be laid) and shall be done by a laboratory having "Wisconsin certified asphalt" technicians. Mix designs shall be submitted for each type bituminous specified and from each plant supplying material and shall be certified by an Asphalt Mix Design Technician III. All costs associated with providing the Village with an acceptable mix design shall be borne by the contractor.

The submitted mix design shall be approved by the Engineer before paving can begin. When paving operations begin, the supplied bituminous mixture will be subjected to testing by a laboratory retained by the Village. Testing done during the course of the paving operation by the Village will be at the Village's expense. Mix designs will be used to evaluate the test results.

601.4

Non-Conforming Mixes

If the test results of the samples tested by the Engineer are outside the acceptable JMF control limits indicated in Table 600-1, additional testing shall be performed as described below.

1. The Engineer shall select a testing laboratory which is acceptable to the Owner and Contractor and which will perform all additional testing.
2. The two backup samples retained by the Engineer shall be tested. The test values for each item listed in Table 600-1 for the two backup samples and the original sample shall be added together and averaged to define the values of the "Averaged Sample".
3. If the test values of the Averaged Sample are within the JMF control limits indicated in Table 600-1, the asphaltic concrete shall be considered satisfactory.
4. If the test values of the Averaged Sample are outside the acceptable JMF control limits, the Contractor shall take two additional samples from the asphaltic concrete pavement placed on the project using the same lot as the previous test samples discussed above. The taking of said samples must be witnessed by and meet with the approval of the Engineer. The Engineer will send these additional samples to the testing laboratory for testing. The test values for each item listed in Table 600-1 for these two additional samples and the values for the Averaged Sample of step 2 above shall then be added together and averaged to define the values of the Final Averaged Sample.
5. If the test values of the Final Averaged Sample are within the JMF control limits indicated in Table 600-1, the asphaltic concrete shall be considered satisfactory.
6. If the test values of the Final Averaged Sample are outside the acceptable JMF control limits, all materials using that lot of nonconforming asphaltic the quantity of material to be replaced based on the project testing data and an inspection of the completed pavement. If the Engineer decides to leave the

nonconforming materials in place, the asphaltic concrete will be paid for at seventy-five (75%) percent of the contract unit price for the asphaltic concrete. If the nonconforming materials are placed in a private development requiring acceptance by the Village and if the Engineer decides to leave the nonconforming materials in place, the Developer shall pay to the Village an amount equal to the quantity of nonconforming pavement multiplied by 0.25 times the average unit price submitted by the bidders awarded contracts for similar pavement on public works projects in the Village during the year in which the pavement is placed and during the preceding calendar year.

7. If the asphaltic concrete is unacceptable, as determined above, the Contractor shall pay for all sample testing except for the tests of the one sample originally tested by the Engineer and for the Engineer's time used to obtain and analyze the four additional samples.
8. If the asphaltic concrete is acceptable, as determined above, the Contractor and Owner shall each pay for fifty (50%) percent of the additional sample testing beyond the test of the one sample originally tested by the Engineer.

TABLE 600 - 1

CONTROL LIMITS

The following control limits shall apply to the Job Mix Formula (JMF).

<u>Item</u>	<u>JMF Control Limit Differences</u>
Aggregate Gradations: <u>Sieve Size</u>	
1/2"	± 8.0% passing by weight
3/8"	± 8.0% passing by weight
# 4	± 8.0% passing by weight
# 8	± 7.0% passing by weight
# 30	± 6.0% passing by weight
#200	± 3.0% passing by weight
Asphalt Content	± 0.5%
Air Voids	± 1.3%
Voids in the Mineral Aggregate (VMA)	- 1.5%

The JMF control limit for each item shall be calculated by adding and subtracting the above listed differences to and from the respective values established in the job mix formula.

- 601.5 Traffic Control
Asphaltic concrete paving operations shall not commence until traffic control devices, meeting the requirements of Section 900 of these standard specifications, have been furnished and installed.
- 601.6 Pavement Sections
The minimum pavement section for all roadways within the Village of Slinger shall meet the requirements of Section 303.3.1 of these standard specifications.

602 – MATERIALS FOR ASPHALTIC CONCRETE

- 602.1 General
All aggregates, salvaged asphaltic pavement materials, and asphaltic materials intended for use in base, binder, or surface courses of asphaltic concrete, and in tack or seal coats, surface treatments, and similar work shall conform to the requirements of Section 401 of the WDOT Specifications.
- 602.2 Source of Supply - The source of supply and the quality of materials or products shall be subject to the approval of the Engineer before delivery is started. The contractor shall submit a statement specifying the source of aggregates and bituminous materials to be used. This data shall be submitted at the time mix designs are submitted.
- 602.3 Job Mix Formulas - At least two weeks prior to commencing any paving operations, the contractor shall submit to the Engineer an asphalt mix design report (ASTM D-1559) including: void data, a sieve analysis on the aggregates, aggregate blend percentages, job mix formula, recommended asphalt content and recommended plant mix temperature range. The mix design shall be current (within the year the material will be laid) and shall be done by a laboratory having "Wisconsin certified asphalt" technicians. Mix designs shall be submitted for each type bituminous specified and from each plant supplying material and shall be certified by an Asphalt Mix Design Technician III. All costs associated with providing the Village with an acceptable mix design shall be borne by the contractor.
- The submitted mix design shall be approved by the Engineer before paving can begin. When paving operations begin, the supplied bituminous mixture will be subjected to testing by a laboratory retained by the Village. Testing done during the course of the paving operation by the Village will be at the Village's expense. Mix designs will be used to evaluate the test results.
- 602.4 Aggregates for Asphalt Concrete - Aggregate gradation shall conform to DOT specifications for HV, MV and LV mixes. The type of mix used on a specific street shall be specified in the special conditions, however, if a specific mix is not specified, the specification below shall govern.

<u>Roadway Type</u>	<u>Mix Type</u>	<u>Binder Grade</u>	<u>Surface Grade</u>
Low volume residential Roadways Parking Lots Frontage Roads/driveways Collector & main roadways	MV	2	3
Pathway	LV/MV	3	3
Intersections – Main roadway/main roadway Main roadway/collector roadway	HV	2	3

Driveways which are being paved integral with the roadway where a MV mix is specified shall be laid as an MV mix. Driveways which are being paved with the roadway where a HV mix is specified shall be paved separately with a LV or MV mix grade 3.

602.5

Asphalt Cement

Typically, asphalt cement shall be Type AC. Penetration 85-100, Viscosity graded AC-10, or SHRP PG 58-22. A Viscosity graded AC-5 Penetration graded 120-150, or SHRP PG 58-28 may be specified in the special conditions. AC shall meet the following requirements:

Penetration Grade – at 77°F (25°C)

<u>Test</u>	<u>Penetration</u>	<u>Grade</u>
Penetration 100g, 5 sec	120-150	85-100
Flash Point, COC, F © minimum	425 (219)	450(232)
Solubility in Trichloroethylene percent minimum	99	99
Tests on Residue from Thin-Film Oven Test		
Loss on Heating percent maximum.	1.3	1.0
Penetration, percent of original, minimum	46	50
Ductility, 77° F (25°C) 5 cm per min. cm. min.	100	75

Viscosity Graded at 140° F (60° C)

<u>Test</u>	<u>Viscosity</u> <u>AC-5</u>	<u>Grade</u> <u>AC-10</u>
Viscosity, 140° F (60° C) poises	50±100	1000±200
Viscosity, 275° F (135° C) CS	175	250
Penetration, 77° F, 100gm 5 sec. min.	140	80
Flash Point, COC, F°	425	450
Solubility in Trichloroethylene percent minimum	99	99
Test on Residue from Thin-Film Oven Test		
Loss on heating, percent	1.3	1.0
Viscosity, 77° F (60° C) poises, max.	2000	4000
Ductility, 77° F (25° C) 5 cm	100	75

SHRP grading of liquids shall meet SHRP specifications

602.6

Use of Reclaimed Asphalt Pavement

The use of RAP shall meet the requirements of Section 407.2.1.4 of the Standard Specifications. The mix design shall include the percentage of RAP being used.

It is understood that the resulting paving mix must meet the same requirements governing virgin mixes as specified in Section 407 of the Standard specifications.

603 - TRANSPORTATION OF MIXTURES

Asphalt mixtures shall be transported from the mixing plant to the point of use in vehicles with metal bottoms and tight, insulated bodies previously cleaned of all foreign material. Inside surfaces of vehicles may be lightly coated with oil before loading, but an excess of oil will not be permitted. During long hauls or when hauling in cool weather, the loads shall be covered with a suitable material to protect them from excessive cooling. No load shall be sent out so late in the day as to prevent completion of spreading and compacting of the mixture during daylight hours, unless lighting satisfactory to the Engineer is provided.

The mixtures shall be delivered promptly to the point of use and the temperature of the mixture while still in the truck, but immediately prior to being used, shall be a minimum of 250° F. and a maximum of 350° F.

During construction, the Contractor shall furnish to the Inspector on the job site a delivery ticket for each load of asphalt mixture delivered to the job. This delivery ticket shall show the date and time of the load, truck number, load number, material specification reference, net weight of the load, and the project to which the load is intended.

In the case of a truck load that is only partially used on the job, the amount of material remaining in the truck shall be ascertained, and the amount actually used shall then be marked on the delivery ticket. The Contractor or his representative and the Inspector shall then sign the partial load delivery ticket in verification thereof.

604 - CONSTRUCTING ASPHALTIC CONCRETE PAVEMENTS

604.1 Foundation for Flexible Base Course

When the foundation is an earth sub-grade, constructed under the contract or under prior separate contract, it shall be prepared or restored by removing all vegetation, excavating and removing materials of whatever nature encountered above the required elevations, excavating areas of yielding, unstable, or unsuitable materials and backfilling with material approved by the Engineer, filling all depressions occurring below the required elevations and smoothing, shaping and compacting the sub-grade to the required grade, section and density. The foundation shall be prepared and proof rolled in accordance with Section 302 of these standard specifications.

604.2 Foundation for Asphaltic Concrete Surfacing

604.2.1 Crushed Stone Base Courses

The surface of the crushed aggregate base course shall be scarified, shaped, and compacted where and as necessary to effect the required cross-section contours, a profile free from abrupt changes in elevation, and a surface free from pits, hollows, depressions, or projections above the normal surface.

The shaping shall be performed by long wheel base blade graders or motor graders. Compaction shall be performed by steel wheeled or pneumatic tired rollers having a minimum unballasted weight of eight (8) tons. See Section 300 for compaction requirements of the base course.

The Contractor shall proofroll the crushed aggregate base course as per Section 301.7 of these Standard Specifications prior to placing the first lift of pavement.

604.2.2 Milling

Where streets are specified to be milled, the pavement shall be milled to remove deteriorated asphalt and obtain a uniform transverse slope of between 1.5 % to 2.5% (2% being ideal) across the pavement. The work shall consist of removing and disposing the existing asphalt pavement by milling at the location and depth designated by the Engineer. The nominal depth is approximately 2.0 inches.

Construction methods shall conform to Section 410.3.2 of the WDOT Specifications.

The milling machine shall be equipped with electronic devices which will provide accurate depth, grade and slope control. The Engineer will make a check to verify the cross section of the road after milling operations.

Where deficiencies are found, the contractor shall re-mill the areas, as marked, at the contractor's cost. In areas where too much pavement has been removed (over tolerance), the amount of asphalt necessary to bring the pavement to the proper milled grade shall be computed and deducted from monies due the contractor. Milling tolerances shall be established as ½" depth over more than 20% of the street surface or more than ½" over any area.

On arterial roadways a "12 foot" mill is preferred but not required over a "6 foot" to minimize delays to traffic and grade control problems. When a mill not capable of making a full lane width pass (minimum 11ft.) is used, the contractor shall exhibit to

the Engineer a plan of operation to limit delays and grade control problems.

At no time shall the contractor remove more asphalt around structures, joints, etc., than has been removed in the street. If the contractor removes more asphalt than necessary, he will be required to base patch the area immediately at his cost.

The contractor shall coordinate his paving operation and milling operation so that no more than two weeks are allowed to pass before the street is paved. If, by the end of the two weeks the street has not been paved, the contractor will be restricted from milling any additional streets until the Engineer permits it. In addition, if the milled roadway becomes hazardous for travel, the Engineer has the option to call in another contractor to surface the roadway. Any extra costs for this work will be deducted from monies due on the contract. Any damage to the roadway resulting from a delay in paving shall be repaired by the contractor at his cost.

If the work has taken place on a main roadway or the butt joint is excessive, the contractor shall place a "paper joint" across the joint area. The cost of the joint shall be included in the cost per square yard of milling.

The contractor will be responsible for the proper maintenance and barricading of streets that are milled until the surface course is placed.

If the work has taken place on a main roadway or the butt joint is excessive, the contractor shall place a "paper joint" across the joint area. The cost of the joint shall be included in the cost per square yard of milling.

604.2.3

Concrete Pavements and Bases

All surplus crack and joint sealing material shall be removed from the surface of the pavement and all protruding joint materials, including fillers and sealers, shall be removed from joints and cracks to at least the surface of the old concrete.

Unstable patches of asphaltic materials used to fill localized pits, depressions, or badly spalled or disintegrated areas of the old pavement, shall be completely removed to the underlying concrete.

These areas shall then be tack coated, filled with approved asphaltic concrete mixture, and compacted. Loose concrete or concrete with incipient spalling within or contiguous to such an area shall be removed and replaced with concrete or an approved asphaltic concrete mixture.

604.2.4

Uneven Pavements

All required corrections to the existing pavement such as filling pot holes, depressions, and sags, and alterations of existing pavement crown in order to provide a foundation of required section and density shall be made after the correction areas are tack coated. All corrections shall be made prior to placing tack coats and asphaltic concrete on any existing pavement foundation. Asphaltic concrete mixtures used in wedging or leveling courses may be placed by hand, blade grader, or mechanical spreader methods, and shall be feathered out to become flush with contiguous areas and shall be uniformly compacted.

604.2.5

Joints

On streets which are not milled, a butt joint shall be created between the existing asphalt on intersecting streets and the new asphalt on the overlay street. The existing asphalt shall be cut back on a straight line to provide a butt joint for the full depth of the

new mat. Other joints shall be in accordance to Section 405.5.15 of the DOT Specifications. The cost of butt joints shall be paid by the square yard. If the roadway has not been paved after a two week period following the milling of joints or it has taken place on a main road, the contractor shall place a paper joint in those areas at his cost.

604.2.6 Milling Around Structures in New Subdivisions

The contractor shall be responsible for milling around manholes and catch basins on new subdivision streets that are scheduled to receive the final course of asphalt. This is in addition to the butt joint as stated in paragraph 6.2 above. The cost of milling around these structures, including clean-up, shall be paid for each structure at the bid price set forth in the proposal.

604.2.7 Base Patching

The Engineer may require the contractor to repair areas that have failed or lack sufficient asphalt depth. These areas will be marked in the field after the street has been milled. The contractor shall sawcut (or use another approved method) the existing pavement, excavate and place binder to a depth of 3" or 5 1/2". Asphalt shall be brought to a level flush with the existing pavement. The Engineer shall make the determination on the depth of the patch, however, a 3" patch is typically used on older Village streets and the 5 1/2" patch is usually used on main roads and on subdivision streets with the deep lift asphalt design. The cost of excavation, sawcutting, disposal, asphalt and other items necessary for the patch work shall be paid by the square yard 3" patch. The cost of a 5 1/2" patch shall be paid at twice (2times) the cost of a 3" patch.

Where the Engineer requires the contractor to undercut a patch, the contractor shall excavate the area and bring the area to grade (\pm 3" or 5 1/2") using 1 1/2" TB or greater. The cost for additional excavation and stone shall be at a negotiated price.

At no time shall the contractor use a method which will cause the resulting patch to be deeper or larger than was originally marked. If the Engineer feels that the contractor took out more than was necessary, the final quantity shall be based on the measurements as originally marked

The contractor shall call the Engineer 24 hours prior to the work. Patching done without notification to the Engineer prior to the patch work will not be paid for.

604.2.8 Pulverizing and Shaping

Streets to be pulverized will be indicated on the plan. The existing asphalt surface shall be pulverized, using an approved pulverizing machine, to the depth of the existing asphalt pavement (maximum depth of 8"). If the depth of the pavement is unknown, extreme care shall be taken to prevent penetration into the subgrade of the roadway. The existing asphalt pavement shall be pulverized to its original particle size with 95% passing the 1 1/2" sieve. Pieces larger than 1 1/2" shall be broken apart by hand and incorporated into the work or removed from the site. Should these requirements not be met after one pass of the pulverizing equipment, additional passes, as necessary, shall be made at no additional cost. If the Engineer feels it is necessary for portions of the pulverizing material to be removed due to its size, the cost shall be borne by the contractor.

The roadway shall be shaped and mechanically compacted after it is pulverized to allow an ideal cross slope of .02"/ft. Compaction shall proceed with the necessary passes until approved by the Inspector. Water may be added to aid in the compaction.

(Compaction shall be done using a vibratory sheepfoot roller when the material pulverized is greater than 4" deep).

604.3

Tack Coat

An asphalt tack coat shall be applied to all existing paved surfaces on the same day the pavement will be placed, using a CSS-1 or other emulsified asphalt conforming to Section 402 of the WDOT Specifications.

In addition, the surfaces of structures, vertical faces of existing pavements and other surfaces in actual contact with asphalt mixes shall be painted with a thin, complete coating of tack coat to provide a closely bonded, watertight joint.

When adjoining lane or abutting intersection is not placed the same day, the vertical edge shall receive tack coat before the adjacent asphalt is placed.

Tack shall be applied between lifts.

The tack coat shall be applied at the rate of .05 to .15 gallons per square yard. If the contractor uses more than [.15 gal/sy + 10% (.15 gal/sy)], the contractor shall pick up any additional cost for over-tacking. At no time shall tack be placed on a wet or dirty surface.

During construction the Contractor shall furnish the inspector on the job site with a delivery ticket for each load of tack material delivered to the job. This delivery ticket shall show the date of delivery; truck number; class, type, and grade of material delivered; temperature; number of gallons delivered; and the project to which the load is intended.

604.4

Placing Asphaltic Concrete Paving Mixtures

604.4.1

Preparation

Prior to arrival of the asphaltic concrete, the surface to be paved shall be cleaned of all foreign and loose materials. The surface shall be dry and the atmospheric temperature shall conform to the requirements of WDOT 405.3.1.

The asphaltic concrete paving mixture shall be laid only on a prepared, firm, and compacted base or foundation course.

Any asphaltic concrete paving mixture which, in the judgment of the Engineer, is not sufficiently mixed or is deficient in any manner and is delivered and placed on the road, shall be rejected.

No asphaltic concrete paving mixture shall be placed over frozen sub-grade, base, or pavement. Asphaltic concrete paving mixture shall not be placed when it is raining or snowing. Any mixture exposed to rain or snow before final rolling which has, in the judgement of the Engineer, been adversely affected thereby, shall be removed and replaced at the Contractor's expense.

Unless approved by the Engineer, no asphaltic concrete pavement may be placed adjacent to new concrete until either seventy-two (72) hours of curing time has occurred if the new concrete is high early strength concrete or until the new concrete has reached a compressive strength of 3500 psi as evidenced by a proof test cylinder break furnished by the Contractor at no extra cost to the Village.

- 604.4.2 Spreading
A mechanical asphalt mixture paving machine conforming to WDOT 405.2.5 shall be used to spread the asphaltic concrete mixture.
- The asphaltic concrete mixtures shall be placed in one or more courses to the typical sections as shown on the plans. The maximum depth of separate leveling, binder or surface courses shall not exceed two and one-half (2 1/2") inches in compacted thickness unless otherwise specified by the Engineer. The compacted surface course shall have a minimum thickness of one and one-quarter (1 1/4") inches, unless otherwise provided on the plans.
- The operating speed of the paver, when placing any course, shall be subject to the approval of the Engineer and shall not exceed that speed which is appropriate to the type of paver and type of mixture used, to produce a uniformly spread and struck-off mixture having a smooth, dense texture, without tearing or segregation of the material. As nearly as possible, the paver shall maintain a speed which coincides with the average rate of delivery of asphaltic concrete material to the paver.
- In succeeding courses, construction joints shall not be placed in the same vertical plane. Longitudinal joints shall be off-set at least six (6") inches, and transverse joints shall be off-set at least two (2') feet.
- Hand methods may be used for spreading materials over areas inaccessible to pavers. The material shall be placed in the area by means of shovels or loaders and spread by rakes or lutes. Spreading by means of raking from a pile of dumped material shall not be permitted.
- Traffic shall be prohibited on the laid course until final rolling is completed.
- 604.4.3 Manhole and Valve Box Adjustments
The contractor shall adjust all manholes and valve boxes to the requirements of sections 401.3.5, 402.3.5, and 403.3.11 of these standard specifications.
- 604.4 Compaction
- 604.4.1 General
Compaction of asphaltic concrete pavement shall conform to the requirements of Section 407 of the WDOT specifications using the Maximum Density Method.
- 604.4.2 Degree of Compaction
All asphaltic concrete pavements, overlays, patches, leveling courses, and wedges shall be compacted to a minimum, meet the requirements specified in Section 407 of the WDOT specifications.
- 604.4.3 Compaction Testing
- 604.4.3.1 General
The Contractor shall provide compaction testing on paving projects when paving more than 350 tons on any lift for Village contracts and for private development projects in which the Developer is constructing public streets.
- 604.4.3.2 Contractor-Furnished Compaction Testing
When the Contractor is required to provide compaction testing, the compaction testing shall be performed in accordance with the requirements of this subsection.

The Contractor shall provide compaction testing on the asphaltic concrete pavement by utilizing a nuclear density gauge specifically designed to determine compaction. The Contractor shall provide written reports of said testing. The Contractor shall provide a nuclear density technician certified at Level 1 (as specified in the 2001 Edition of the WDOT Supplemental Specifications), to perform the compaction testing. The testing procedures and results shall be in accordance with the 2001 Edition of the WDOT Supplemental Specifications and as herein modified.

The Engineer will establish random testing locations during construction. Compaction tests shall be taken as soon as practical after placement and compaction and before placement of subsequent layers.

Nuclear density testing shall take place on both binder courses and the surface course of asphaltic concrete pavement, for a total of five (5) random sets of tests taking place on each lot of the asphaltic concrete pavement placed. The compaction tests shall be staggered on each course of asphaltic concrete so that no test is located in an identical location above or below another.

A lot shall represent 350 tons of a mixture placed within a single layer of asphaltic concrete pavement. Five (5) random tests shall be taken on each lot placed. The lot density is the average of all samples taken for that lot.

All tests shall be performed on a sufficiently prepared test area to accommodate the gauge. The test area shall be planed smooth and the Contractor shall remove all loose and/or disturbed material. When a void area exceeds one-sixteenth (1/16) inches in depth, the operator shall use native fines or fine sand to fill the voids and smooth the surface with a rigid plate or other suitable tool. The area filled beneath the gauge shall not exceed ten percent (10%) of the total area. The gauge shall be set flat on the surface with the longest dimension of the gauge parallel to the edge of the pavement.

The duration of the test shall be four (4) minutes (Seaman gauges, two (2) minutes contact and two (2) minutes air gap).

The results of the compaction testing shall be submitted on a form approved by the Engineer prior to the testing taking place. At a minimum, the Contractor shall provide the Engineer with a mix design report of the material being placed, the approximate station and approximate offset distance and direction (ie. Left, right) from the reference line, the minimum compaction required for the material being placed, and the compaction result (reported in pounds per cubic foot).

All costs associated with the compaction testing and reporting for asphaltic concrete pavement by the Contractor shall be included in the unit price for constructing the pavement.

- 604.5 Measurement
- 604.5.1 Crushed Stone Base Course
Measurement and payment for crushed stone base courses will be as described in Section 303 of these standard specifications.
- 604.5.2 Milling
Milling will be measured by the square yard of material removed or as otherwise provided in the contract documents.
- 604.5.3 Butt Joints
Butt joints will be measured by the square yard of material removed or as otherwise provided in the contract documents.
- 604.5.4 Base Patching
Base patching will be measured by the square yard complete, in the place and accepted by the Engineer. The quantity to be measured for payment shall be the areas of patching as laid out by the Engineer and will be calculated on the basis of average dimensions in case of irregularly shaped areas.
- 604.5.5 Pulverizing and Shaping
Pulverizing and shaping will be measured by the square yard of material pulverized or as otherwise provided in the contract documents.
- 604.5.6 Asphaltic Concrete Pavement
Asphaltic concrete pavement will be measured per square yard of material placed and accepted by the Engineer in accordance with the contract documents.
- 604.6 Payment
- 604.6.1 Butt Joints
Butt Joints, measured as provided above, will be paid for at the contract unit price per square yard milled which shall be full compensation for removing, hauling, disposing and/or stockpiling, and for furnishing all labor, equipment, tools and incidentals necessary to complete the work.
- 604.6.2 Base Patching
Base patching measured as provided above, will be paid for at the contract unit price per square yard. That price shall be full compensation for furnishing all materials, for the sawing and removal of old pavement, including any patching or surfacing materials for all excavation, for the preparation of the foundation, including all necessary cutting and trimming, filling or depressions to shape the subgrade to grade and section and satisfactory compaction; for disposal of all removed or excess materials; for furnishing, placing, compacting asphaltic mixture, including the asphalt; and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.
- 604.6.3 Pulverizing and Shaping
Pulverizing and shaping, measured as provided above, will be paid for at the contract unit price per square yard, which price shall be full compensation for pulverizing, wind rowing, watering, compacting, hauling, and stockpiling, disposing of excess materials.

604.6.4

Asphaltic Concrete Pavement

Asphaltic concrete pavement as measured above, will be paid for at the contract unit price per square yard which price shall be full compensation for all items described above, unless specifically measured for payment independently, and for furnishing, preparing, hauling, mixing and placing of all materials; for compacting mixtures; for preparing the foundation; and for all labor, tools, equipment and incidentals, including maintenance, necessary to complete the work.

605 - CRACK SEALING OF ASPHALTIC CONCRETE PAVEMENTS

605.1

Scope of Work

The work under this section shall consist of the cleaning and sealing of cracks in asphaltic concrete pavement at the locations and as specified in the bidding documents and as provided by the contract.

The Contractor shall furnish all labor, supervision, equipment, materials, supplies, tools, and incidentals for the crack sealing work.

605.2

General

The Contractor shall inform the Engineer of the commencement of work at least forty-eight (48) hours prior to beginning the work.

At no time shall the Contractor place crack sealant material without the inspection of the Engineer's representative unless approved by the Engineer. If crack sealant material is found to be placed without inspection or approval of the Engineer, the quantity placed will not be accepted for payment.

The Contractor shall not crack seal any pavement areas that are to be wedged or overlaid with asphaltic concrete. If any such areas exist on the pavements to be crack sealed, then all such areas not to be crack sealed will be marked by the Engineer prior to the start of the crack sealing work.

Crack cleaning and sealing shall be done only when the ambient air and pavement surface temperatures are above 40°F. When near this minimum, additional air blasting or drying time, or both, may be necessary to assure a satisfactory bond to the cracks surfaces. Crack sealing material shall not be heated to a temperature in excess of 410°F.

Cracks shall be sealed within two (2) weeks after preparation and within fifteen (15) minutes of lancing.

Traffic lanes may be opened to traffic only after the crack sealing material has set sufficiently so it will not be picked up under traffic. Powder may be applied to the crack sealing material, but only after the material surface has set so as to avoid penetration of the powder into the material.

605.3

Materials

The crack sealant material shall be a rubberized material which is compatible with both chip seal materials and slurry seal materials, either of which may be used in the future on the pavement being crack sealed. The crack sealant material shall also conform to the requirements of ASTM D3405-78, Standard

Specifications for Joint Sealants, Hot Poured, for Concrete and Asphalt Pavements. A hot-pour crack sealant shall be used. Prior to any work beginning on the project, the Contractor shall submit to the Engineer a manufacturer's certificate stating that the crack sealant material complies with the above requirements.

605.4

Equipment

Routing or sawing equipment shall be mechanical and power driven, capable of cutting the cracks to the required dimensions. Equipment designed to "plow" the cracks to dimension will not be permitted.

Air compressors shall provide moisture and oil-free compressed air and shall be of sufficient size to blow sand and other foreign material from the crack prior to placing the crack sealant materials.

High temperature (2700° avg.) and high air velocity (1900 FPS avg.) crack blowing equipment shall be used to do final crack blowing and lancing.

Equipment used for heating and placing the premixed material shall be of the oil-jacketed, double-boiler type, capable of heating the material to 400°F and pumping the material into the prepared cracks.

A narrow shaped squeegee, doughnut dish, or similar device approved by the Engineer, shall be used to aid in the placement of the crack sealant material.

605.5 Construction

605.5.1 Routing or Sawing

The following requirements for crack preparation shall be met by the Contractor on asphaltic concrete pavements that are to have routing or sawing of its cracks.

1. Cracks which have an average opening of one-half (1/2) inch or less shall be routed or sawed to provide a minimum filler material reservoir of one-half (1/2) inch in width by a nominal three-quarter (3/4) inch depth.
2. Cracks which have an average opening greater than one-half (1/2) inch shall be routed or sawed to provide a filler material reservoir of three-quarter (3/4) inch in width by three-quarter (3/4) inch depth.
3. Maximum Routing and Sawing Dimensions:
Cracks shall not be routed or sawed to more than a three-quarter (3/4) inch width by a three-quarter (3/4) inch depth unless approved by the Engineer. Cracks with an average opening greater than three-quarter (3/4) inch wide and three-quarter (3/4) inch deep are not required to be routed or sawed.

If the crack sealing operation will not immediately follow the crack preparation work, all debris shall be removed from the affected travel lanes immediately after the crack preparation work is completed on a roadway, and the lanes shall be opened to traffic. Debris may be moved to the edges of the roadway.

605.5.2 Crack Cleaning

All cracks that are to be crack sealed shall be blown clean of all vegetation and debris prior to the sealing of the cracks. All such cracks shall be clean and dry prior to being sealed.

Immediately prior to sealing, all cracks shall be lanced with high temperature - high velocity Village blowing equipment to remove moisture from the crack.

605.5.3 Sealing of Cracks

The entire crack reservoir shall be filled to a level even with the roadway surface. Crack sealant material above the pavement surface or on the pavement surface in excess of one-half (1/2) inch from the edges of the crack will not be allowed. All cracks in excess of one-quarter (1/4) inch in width shall be crack sealed. Cracks of widths equal to or less than one-quarter (1/4) inch shall not be crack sealed.

Areas where alligator cracks in the pavement exist shall not be crack sealed. The Contractor may propose an alternate method of filling the areas of alligator cracks. The use of any such alternate method shall be subject to the approval of the Engineer.

Unless specified in the Contract Documents, the longitudinal crack located at the interface of the asphaltic concrete pavement and curb and gutter flange shall not be crack sealed and shall not be cleaned out.

After sealing the cracks the Contractor shall furnish and place paper, sand, or other de-tackifier materials onto the surface of the sealant so that the street can be open to traffic within two (2) hours of the sealant placement.

605.5.4 Debris Removal

Asphaltic concrete and debris from the routing, sawing, crack preparation, and crack sealing work shall be removed from the pavement surface by brooming, blowing with compressed air, or other methods satisfactory to the Engineer. Unless specified otherwise in the Contract Documents, the Contractor shall leave the debris along the edges of the pavement, and the Village will remove the debris.

605.6 Measurement

The measurement of crack sealant materials will be made per pound of crack sealant material furnished from the stock pile and placed on the streets.

605.7 Payment

Payment for furnishing and placing the crack sealant material will be made per pound of crack sealant material furnished and acceptably placed on the specified streets. All costs for routing, sawing, crack cleaning, lancing, crack sealing, and sweeping; for furnishing manufacturer's certificates; and for all labor, supervision, materials, equipment, supplies, tools, and incidentals necessary to complete the crack sealing work shall be included in the contract unit price for crack sealing as described in the contract documents.

- END OF SECTION 600 -